IN THE CLAIMS

Please amend the claims as follows:

Claims 1-5 (Canceled).

Claim 6 (currently amended): A cold cathode discharge device used as a discharge lamp comprising:

an envelope filled with a discharge gas therein; and

a cold cathode positioned in the envelope,

wherein the cold cathode comprises a supporting member of conductive material and an electron emitter with an electron-emitting surface to emit electrons supported by the supporting member, the electron emitter comprising a mixed phase of diamond phase and conductive carbon phase, the conductive carbon phase extending in the form of a channel between the supporting member and the electron-emitting surface in the electron emitter, and the discharge gas including a rare gas and mercury.

Claim 7 (original): The cold cathode discharge device as stated in Claim 6, wherein the discharge gas includes xenon.

Claim 8 (currently amended): The cold cathode discharge device as stated in ~~claim~~ Claim 6, wherein the diamond phase of the electron emitter contains a donor impurity.

Claim 9 (original): The cold cathode discharge device as stated in Claim 6, wherein the diamond phase comprises a granular body, and the conductive carbon phase comprises graphite or amorphous carbon layers, formed on a boundary surface of the granular body.

Claim 10 (currently amended): The cold cathode discharge device as stated in Claim 6, wherein the electron-emitting surface is made rough, and the conductive carbon phase is exposed on the electron emitting surface.

Claims 11-12 (canceled).

Claim 13 (currently amended): A cold cathode discharge device used as a discharge lamp comprising:

an envelope filled with a discharge gas therein; and

a cold cathode positioned in the envelope,

wherein the cold cathode comprises a supporting member and an electron emitter with an electron-emitting surface to emit electrons supported by the supporting member of conductive material, the electron emitter comprising a mixed phase of diamond phase and conductive carbon phase, the conductive carbon phase extending in the form of a channel between the supporting member and the electron emitting surface in the electron emitter, and the discharge gas containing a gas including an element with a principal radiation peak of 200 nanometers or less in wavelength.

Claim 14 (original): The cold cathode discharge device as stated in Claim 13, wherein the discharge gas includes xenon.

Claim 15 (currently amended): The cold cathode discharge device as stated in Claim 13, wherein the diamond phase of the electron emitter includes a donor impurity.

Claim 16 (original): The cold cathode discharge device as stated in Claim 13, wherein the diamond phase comprises a granular body, and the conductive carbon phase comprises graphite or amorphous carbon layers, formed on a boundary surface of the granular body.

Claim 17 (currently amended): The cold cathode discharge device as stated in Claim 13, wherein the electron-emitting surface is made rough, and the conductive carbon phase is exposed on the electron emitting surface.

Claims 18-20 (canceled).

Claim 21 (new): The cold cathode discharge device as stated in Claim 6, wherein the envelope is an elongated envelope having the supporting member in both end regions thereof.

Claim 22 (new): The cold cathode discharge device as stated in Claim 13, wherein the envelope is an elongated envelope having the supporting member in both end regions thereof.

IN THE DRAWINGS

The attached sheet of drawings includes changes to Figure 1. This sheet, which includes Figure 1, replaces the original sheet including Figure 1.

Attachments: Replacement Sheet (1)